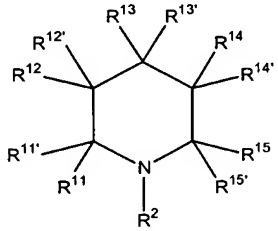
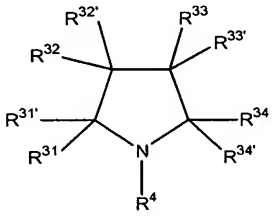
WHAT IS CLAIMED IS:

1. A method of treating a hepatitis C virus (HCV) infection comprising:

administering to a subject in need thereof a compound selected from a group consisting of compounds of formula **I** or **II**, related isomers, pharmaceutically acceptable salts, and solvates thereof:



I



II

wherein each substituent R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, $R^{15'}$, R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is selected, independently from each other, from a group consisting of -H; -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy; aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN; $-NO_2$; -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; -NHOH; aryl; and heteroaryl, wherein each substituent may be the same or different;

wherein each alkyl, alkenyl, alkynyl, aryl, and heteroaryl moiety may be optionally substituted with one or more groups independently selected from -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl;

arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH; and

R^2 and R^4 are substituents selected independently of each other from a group consisting of linear C_{7-18} alkyl, substituted C_{1-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl;

wherein each linear C_{7-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl optionally may be substituted, and each substituted C_{1-18} alkyl is substituted with one or more groups independently selected from a group consisting of -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH.

2. The method according to claim 1 further comprising contacting one or both of an HCV p7 protein and components of a membrane that contains the p7 protein with the compound.

3. The method according to claim 1 wherein the compound is of the formula I.

4. The method according to claim 3 wherein at least one of R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, and $R^{15'}$ is $-CH_2OH$.

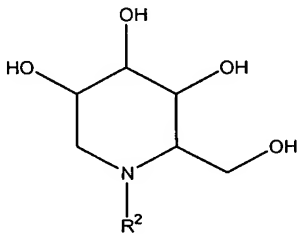
5. The method according to claim 3 wherein at least one of R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, and $R^{15'}$ is –OH.

6. The method according to claim 3 wherein R^2 is a linear C_{7-18} alkyl, branched C_{3-18} alkyl, or a substituted C_{1-18} alkyl group.

7. The method according to claim 6 wherein R^2 is a linear C_{7-11} alkyl, branched C_{7-11} alkyl, or a substituted C_{7-11} alkyl group.

8. The method according to claim 3 wherein at least two of R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, and $R^{15'}$ are selected from a group consisting of $-CH_3$, $-CH_2OH$, and $-OH$.

9. The method according to claim 8 wherein the compound is one selected from a group consisting of:



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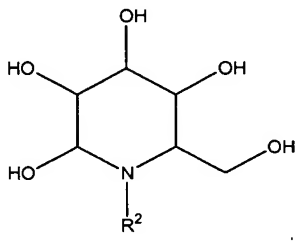

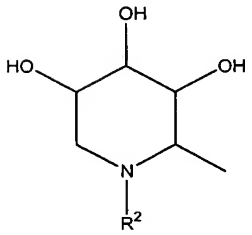

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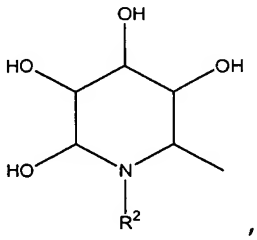

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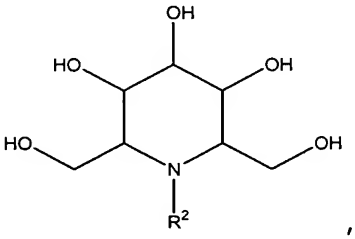

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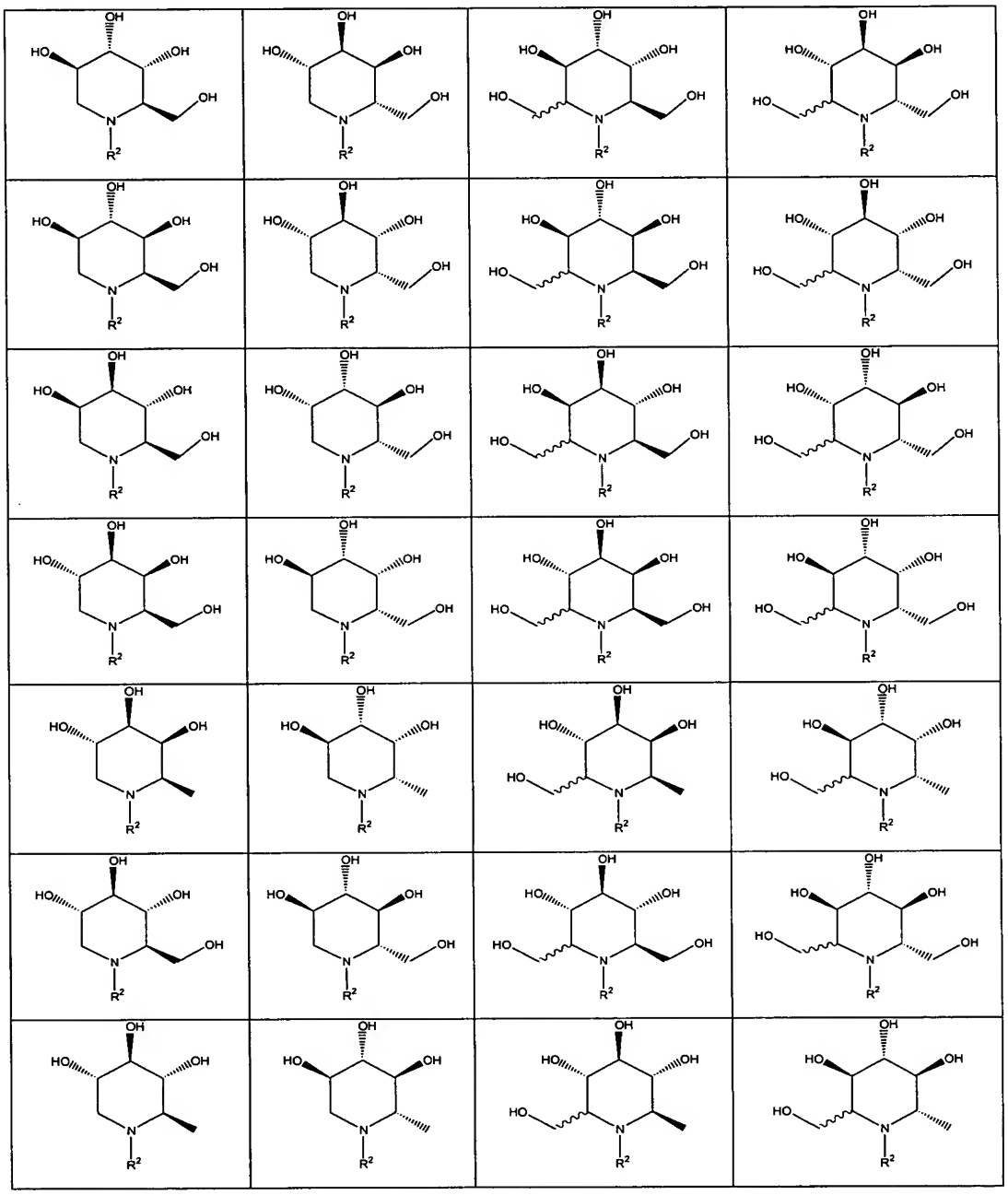
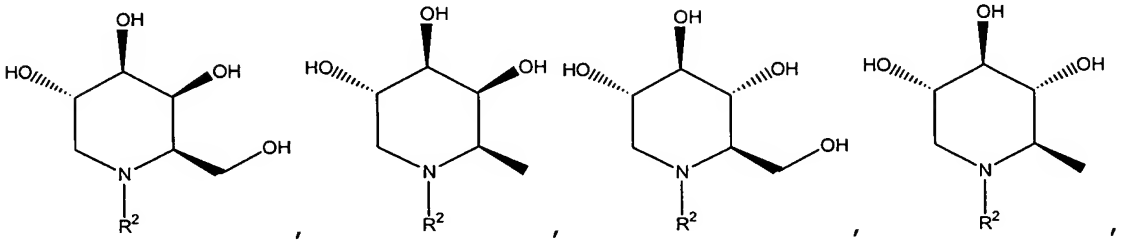
related isomers, and mixtures thereof.

10. The method according to claim 9 wherein the compound is one selected from a group consisting of compounds set forth in the following table:



11. The method according to claim 1 wherein the compound is one selected from the group consisting of:



and mixtures thereof.

12. The method according to claim 11 wherein R^2 is a linear C_{7-18} alkyl, branched C_{3-18} alkyl, or a substituted C_{1-18} alkyl group.

13. The method according to claim 11, wherein R^2 is a linear C_{7-11} alkyl, branched C_{7-11} alkyl, or a substituted C_{7-11} alkyl group.

14. The method according to claim 11, wherein R^2 is a linear C_{7-18} alkyl.

15. The method according to claim 14, wherein R^2 is a linear C_{7-11} alkyl.

16. The method according to claim 15, wherein R^2 is *n*-nonyl.

17. The method according to claim 11, wherein R^2 is a linear or branched C_{1-18} alkyl group substituted with a C_{1-6} alkoxy group.

18. The method according to claim 17, wherein R^2 is 7-oxanonyl.

19. The method according to claim 17, wherein R^2 is 10-undecyl.

20. The method according to claim 11 wherein R^2 is *n*-nonyl.

21. The method according to claim 11, wherein R^2 is a linear or branched C_{1-18} alkyl group substituted with a C_{1-6} alkoxy group.

22. The method according to claim 11, wherein R^2 is 7-oxanonyl.

23. The method according to claim 11, wherein R^2 is 10-oxaundecyl.

24. The method according to claim 1, wherein the compound is *N*-nonyl-DNJ.

25. The method according to claim 1, wherein the compound is *N*-nonyl-DGJ.

26. The method according to claim 1, wherein the compound is N-7-oxanonyl-6-deoxy-DGJ.

27. The method according to claim 1, wherein the compound is N-10-oxaundecyl-methyl-DGJ.

28. The method according to claim 1 wherein the compound is of the formula **II**.

29. The method according to claim 28 wherein at least one of R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is $-CH_2OH$.

30. The method according to claim 28 wherein at least one of R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is $-OH$.

31. The method according to claim 28 wherein at least two of R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ are selected from the group consisting of $-CH_3$, $-CH_2OH$, and $-OH$.

32. The method according to claim 31 wherein R^4 is a linear C_{7-18} alkyl, a branched C_{3-18} alkyl, or a substituted C_{1-18} alkyl group.

33. The method according to claim 31 wherein R^4 is a linear C_{7-11} alkyl, a branched C_{7-11} alkyl, or a substituted C_{7-11} alkyl group.

34. The method according to claim 31, wherein R^4 is a linear or branched C_{1-18} alkyl group substituted with a C_{1-6} alkoxy group.

35. The method according to claim 31 wherein R^4 is *n*-nonyl.

36. The method according to claim 31, wherein R^4 is 7-oxanonyl.

37. The method according to claim 31, wherein R^4 is 10-oxaundecyl.

38. The method of claim 2, wherein the membrane that contains the p7 protein has an increased permeability relative to a membrane that does not contain the p7 protein and the compound reduces the increased permeability.

39. The method of claim 38, wherein the compound inhibits channel formation.

40. The method of claim 38, wherein the compound is a channel blocker.

41. The method of claim 1, wherein the subject is a human.

42. A method of screening for a potential HCV antiviral agent comprising:

incorporating at least one of a p7 protein and a variant into a membrane to create a p7-containing membrane, wherein the p7-containing membrane has an increased permeability relative to a membrane that does not contain p7;

contacting one or more components of the p7-containing membrane with a test compound;

comparing the permeability of the p7-containing membrane, wherein one or more components have been contacted with a test compound, to the permeability of a p7-containing membrane, wherein none of the components have been contacted with a test compound.

43. The method according to claim 42, wherein the p7 protein is selected from a member of HCV clade 1.

44. The method according to claim 42, wherein the p7 protein comprises the amino acid sequence ALENLVILNAASLAGTHGLVSFLVFFCFAWYLKGRWVPGAVYALYGMWPLLLLLLALPQRAYA (SEQ ID NO.: 1).

45. The method according to claim 42, wherein the p7 variant comprises at least one transmembrane domain.

46. The method according to claim 45, wherein the p7 variant comprises at least one of a sequence of amino acids from about position 10 to about position 32 and a sequence of amino acids from about position 36 to about position 58 of a chosen p7 protein.

47. The method according to claim 45, wherein greater than about 70% of the amino acids of the transmembrane domain are members of the group consisting of F, I, W, Y, L, V, M, P, C, and A.

48. The method according to claim 42, wherein the p7 variant comprises biotinylated p7 protein.

49. The method according to claim 42, wherein the p7 protein is contacted with the test compound.

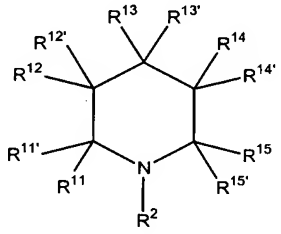
50. The method according to claim 42, wherein the permeability is compared by recording electrical currents through the membrane.

51. The method according to claim 42, wherein the membrane comprises a black lipid membrane.

52. The method according to claim 42, wherein the test compound inhibits channel formation.

53. The method according to claim 42, wherein the test compound is a channel blocker.

54. The method according to claim 42, wherein the test compound is selected from the group consisting of compounds of formula **I** or **II**, related isomers, pharmaceutically acceptable salts, and solvates thereof:



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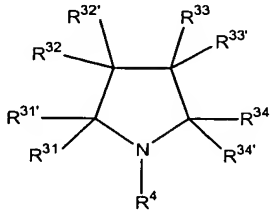


II

wherein each substituent R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, $R^{15'}$, R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is selected, independently from each other, from a group consisting of -H; -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy; aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN; $-NO_2$; -COOH; -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; -NHOH; aryl; and heteroaryl; wherein each substituent may be the same or different;

wherein each alkyl, alkenyl, alkynyl, aryl, and heteroaryl moiety may be optionally substituted with one or more groups independently selected from the group consisting of -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); $-C(O)NH(C_{1-6}$ alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH; and

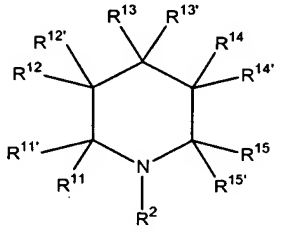
R^2 and R^4 are substituents selected independently of each other from a group consisting of linear C_{7-18} alkyl, substituted C_{1-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl;

wherein each linear C_{7-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl optionally may be substituted, and each substituted C_{1-18} alkyl is substituted with one or more groups independently selected from a group consisting of -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); $-C(O)NH(C_{1-6}$ alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH.

55. The method according to claim 42, wherein the test compound is amantadine or a derivative thereof.

56. A kit for treating a hepatitis C virus (HCV) infection comprising:

(A) a compound of formula **I** or **II**, related isomers, pharmaceutically acceptable salts, or solvates thereof:



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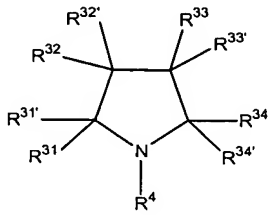


II

wherein each substituent R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, $R^{15'}$, R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is selected, independently from each other, from a group consisting of -H; -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy; aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN; $-NO_2$; -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; -NHOH; aryl; and heteroaryl, wherein each substituent may be the same or different;

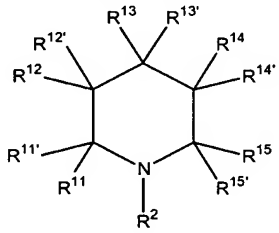
wherein each alkyl, alkenyl, alkynyl, aryl, and heteroaryl moiety may be optionally substituted with one or more groups independently selected from -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH; and

R^2 and R^4 are substituents selected independently of each other from a group consisting of linear C_{7-18} alkyl, substituted C_{1-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl;

wherein each linear C_{7-18} alkyl, branched C_{3-18} alkyl, C_{2-18} alkenyl and alkynyl, and aralkyl optionally may be substituted, and each substituted C_{1-18} alkyl is substituted with one or more groups independently selected from a group consisting of -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); $-C(O)NH(C_{1-6}$ alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and –NHOH; and

(B) instructions for treating HCV infection.

57. A composition of formula **I** or **II**, related isomers, pharmaceutically acceptable salts, or solvates thereof:



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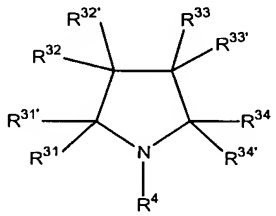

II

wherein each substituent R^{11}, $R^{11'}$, R^{12}, $R^{12'}$, R^{13}, $R^{13'}$, R^{14}, $R^{14'}$, R^{15}, $R^{15'}$, R^{31}, $R^{31'}$, R^{32}, $R^{32'}$, R^{33}, $R^{33'}$, R^{34}, and $R^{34'}$ is selected, independently from each other, from a group consisting of -H; -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy; aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN; $-NO_2$; -COOH, -COO(alkyl); -COO(aryl); $-C(O)NH(C_{1-6}$ alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; -NHOH; aryl; and heteroaryl, wherein each substituent may be the same or different;

wherein each alkyl, alkenyl, alkynyl, aryl, and heteroaryl moiety may be optionally substituted with one or more groups independently selected from -OH; -F; -Cl; -Br; -I; $-NH_2$; alkyl- and dialkylamino; linear or branched C_{1-6} alkyl, C_{2-6} alkenyl and alkynyl; aralkyl; linear or branched C_{1-6} alkoxy, aryloxy; aralkoxy; -(alkylene)oxy(alkyl); -CN, $-NO_2$, -COOH, -COO(alkyl); -COO(aryl); -C(O)NH(C_{1-6} alkyl); -C(O)NH(aryl); sulfonyl; (C_{1-6} alkyl)sulfonyl; arylsulfonyl; sulfamoyl, (C_{1-6} alkyl)sulfamoyl; (C_{1-6} alkyl)thio; (C_{1-6} alkyl)sulfonamide; arylsulfonamide; $-NHNH_2$; and -NHOH; and R^2 and R^4 are 10-oxaundecyl.